



*inspiring people to protect
Bay Area birds since 1917*

November 20, 2006

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Program Management Office West
1455 Frazee Road Suite 900
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RE: September 2006 Draft Feasibility Study IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California

Dear Mr. Andrew Baughman,

Thank you for this opportunity to comment on the Draft Feasibility Study for IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California, dated September 2006 (the "FS"). Golden Gate Audubon has over 6,000 members who care deeply about the protection of birds, other wildlife and their habitat in the San Francisco Bay area. Our members, staff and Board use and enjoy the open spaces of the East Bay and have a sincere interest in protecting the outstanding wildlife and habitat at the Alameda Naval Air Station for future generations.

For over a decade, Golden Gate Audubon has played a lead role in supporting the effort to create the Alameda National Wildlife Refuge, which will be central to protecting the northernmost population of the federally endangered California Least Tern. This is also one of the most critical roosting sites for the federally endangered Brown Pelican, as well as many other wildlife species. Sufficient cleanup of toxics at the Alameda Naval Air Station—a Superfund site—will be essential for both wildlife and the people that will use this site. A comprehensive Feasibility Study is critical to ensuring that this occurs.

We applaud the U.S. Navy's effort to integrate some of Golden Gate Audubon's previous comments during the RI Document process. However, we are concerned about several serious deficiencies of this study. It is the opinion of Golden Gate Audubon that this Feasibility Study does not call for adequate capping of all impacted soil. Additionally, the "Groundwater Monitored Natural Attenuation" section does not substantiate the occurrence of attenuation processes at the site nor predict the length of time for adequate attenuation to occur. For this reason, we urge the Navy to revise the report to address these and other deficiencies.

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Golden Gate Audubon has contracted two well-respected scientists, Dr. June A. Oberdorfer and Patrick G. Lynch, P.E. of Clearwater Revival Company, in preparing these comments. This document is an integration of their comments, as adapted by and on behalf of Golden Gate Audubon. For substantive questions on any of the following comments, please feel free to reach me.

GENERAL COMMENTS

1. **Removal of Radium-Impacted Soil:** A time-critical removal action (TCRA) to address soils impacted by radium (at activities above background) is planned as an action separate from the remedial actions taken as part of the Feasibility Study. This action is not described in detail, but where it is mentioned the FS indicates that the surface soils in the landfill area will be addressed. Since this TCRA addresses a significant component of the risk identified in the Remedial Investigation (RI), this radium-removal action should be considered an integral part of the FS at IR Site 2. As such, the TRCA should address:
 - a. **Radium-impacted soils in the wetlands:** The human health risk in the wetlands area is identified in the RI as resulting from radium impact in the soils. This impact is not addressed by the proposed soil remedial alternative which is to cover the landfill area and a small portion of the immediately adjacent wetlands. The regions with radium-impacted soil in the wetlands are not proposed to be covered. It is important that the removal of radium-impacted soils be extended to the wetlands so that this risk to the human receptors will be eliminated.
 - b. **Soil removal to clean depth:** Not only the surface soils should be addressed by the removal action, but also the deeper soils. Radium-impacted soils should be removed until a depth is reached where the soil is no longer impacted. The radioactive soil should not be left in place as it poses a future threat to groundwater, surface water, and San Francisco Bay (particularly in the event of liquefaction failure during an earthquake).
2. **Remedial Action Objectives**
 - a. One of the remedial action objectives in the FS Report is to: *"Protect human health by preventing exposure ... during recreational use of the site until such time as risks associated with the presence of these constituents are no longer unacceptable."* This objective cannot be obtained through a containment remedy, because time is not going to eliminate unacceptable risks posed by persistent toxic chemicals at IR Site 2.
 - b. The remedial action objectives do not address the presence of ordnance/explosives, asbestos debris and containerized liquid waste, all of which have been documented at IR Site 2.
 - c. Remedial actions objectives were based solely on the RI Report sampling results and ignored 20 years of previous investigations at IR Site 2. Sample results from these previous investigations showed surface soil contamination along the seawall outside of the landfill boundary. The

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concentrations of PCBs and PAHs found in these previous near shore samples exceeded risk based criteria.

3. The Landfill:

- a. The years of IR Site 2 landfill operation should be modified to include the 1981 disposal of dredged material from the seaplane lagoon into the wetlands portion of the site.
- b. During the 1980s the Alameda Naval Air Station reported producing about 2 million pounds per year of hazardous waste, of which two-thirds was off-specification (unused) material. Based on this information at least 40 million pounds of hazardous waste was disposed of at IR Site 2 during its operational life, and much of this hazardous waste was still in its original containers.
- c. The levels of methane found in several soil gas samples indicate that the landfill is still in the methane fermentation phase. Previous comments on the RI Report noted that the assumptions used in developing screening levels for toxic chemicals in soil gas are not applicable to landfill gas, and the risk posed by emissions of landfill gas from existing vents is unknown. The FS Report states that the need to consider landfill gas controls will be left to the design phase, which prevents the comparison of alternatives with respect to control of landfill gas emissions.

4. Footprint of Landfill Cap: The proposed area of the landfill to be capped is inadequate. Only the area within the landfill berm is proposed in the FS to be covered. When the landfill berm was constructed, it did not encompass the entire area underlain by waste but rather was constructed atop waste. Five test pits were dug (see Figure 3-1 of the RI) outside of the landfill berm. All five pits encountered waste, in some cases covered by only 2 to 3 inches of soil (see Table 3-1 in RI). Additional pits were not dug to identify the lateral extent of waste (i.e., there was no stepout of pit digging until waste was not encountered). Soil sampling did not extend out to or beyond the area of a number of these test pits to identify the lateral extent of soil impact, in spite of the fact that soil discoloration was observed in a number of the pits. Based on these observations, the FS should:

- a. **Identify the lateral extent of waste and impacted soil:** This identification would be done through the digging of additional test pits and through additional surface and subsurface sampling. The investigation should include the identification of chemical contaminants, radium, and Ordinance and Explosive Waste (OEW). In our comments on the Draft RI, we identified the lack of definition of the lateral extent of waste as a significant data gap. It continues to be a significant data gap in addressing the footprint of the landfill cover.
- b. **Increase the size of covered area:** All the waste and impacted soil at the site should be covered. This is a very standard practice in landfill closure. Having areas with waste left with just a few inches of overlying soil will not be protective of recreational users or wildlife at the site.

5. Inadequacy of Soil Cover: The proposed soil cover does not restrict infiltration through the waste and contaminated soil at the site. As such, it does nothing to

minimize future leaching of contaminants from the zone above the water table. This leaching will continue to impact the groundwater below the waste and, by connection, surface water in the North Pond and San Francisco Bay. The RI identified ecological risks to birds in the North Pond area. Additional eco-risks (eg., to fish) were not included in the Ecological Risk Assessment (ERA), so those risks have not been evaluated. The FS should:

- a. **Evaluate its decision to overlook generally accepted engineering practices for closure of landfills in favor of a design standard that cannot at this time be described beyond being two-feet thick.** The source of borrow soil should not determine the design criteria for a landfill cap. Unless design specifications (slope, permeability) are proposed for the soil cover, the effectiveness evaluation required in an FS Report can't be completed. How can the effectiveness of an engineered cap in reducing leachate volume be compared to the effectiveness a soil cover without these criteria?
- b. **Follow the CERCLA statutory preference for remedies that reduce the mobility, volume, and toxicity of waste.** The \$8 million dollar soil cover remedy recommended for the landfill will not meet this statutory preference. The recommended alternative for IR Site 2 does not meet the two CERCLA threshold criteria, compliance with Applicable, or Relevant and Appropriate Requirements (ARARs), and protection of public health and the environment. In addition the proposed landfill remedy does do not meet the presumptive remedy requirements as it would do little to provide containment of the buried wastes.
- c. **Create alternatives that address both the landfill and wetland areas.** The benefit from mating remedies for both the landfill and wetland areas enables the alternative evaluation to recognize the benefits for instance that an engineered cap would provide on reducing the amount of leachate that enters the wetlands ponds.
- d. **Consider that the City of Alameda has closed a landfill of similar age, operating life and environmental setting, to the Site 2 landfill.** The City of Alameda landfill continues to operate landfill gas controls, has a graded-cover, and surface water controls to prevent cap erosion. As the City of Alameda's financial resources are much more limited than the federal government, it would be appropriate that the remedy proposed by the US Navy for IR Site 2 is at least as effective as a remedy implemented by the City of Alameda over 25 years ago.
- e. **Consider that the use of trucks versus barges to deliver the soil cover is a decision that needs to be made at the FS stage.** An alternative that involves the addition of 10,000+ truck trips over several months on city streets and through island access routes will be unacceptable to the community. The FS Report should note that the diesel exhaust
- f. **Include an impermeable layer in the cap:**
 - i. A landfill cap with an impermeable layer would minimize leaching from the waste left in place in the landfill. This would address the

Remedial Action Objectives (RAOs) of minimizing ecological risk and risks to the beneficial uses of the surface water.

- ii. In arguing against the installation of an engineered cap, the FS Report cites the complexities of removing runoff because a nearby electrical outlet does not exist. This type of complexity can be overcome by using gravity to drain the cap.
- g. **Meet State of California landfill cover requirements:**
 - i. Under Title 22, there are prescriptive cover requirements for landfill closure. Since this state regulation is more stringent than what is being proposed for the soil cover, the State regulations should take precedence.
 - ii. The FS Report states that landfill closure standards do not apply because regulations were promulgated after the landfill stopped receiving waste. To the contrary, the law is applicable to the IR Site 2 landfill, and it appears that the Navy may be in continuous violation of these requirements since the date they became effective. Consider the following regulation, Title 27 California Code of Regulations Section 21100, Closure and Post-Closure Maintenance Standards for Disposal Sites and Landfills, Scope and Applicability: *"The regulations contained in this article: (1) apply to disposal sites that did not complete closure prior to November 18, 1990, in accordance with all applicable requirements; and (2) new post-closure activities that may jeopardize the integrity of previously closed disposal sites or pose a potential threat to public health and safety of the environment."* This regulation clearly contradicts the FS Report. The regulation is applicable, because the landfill did not complete closure prior to 1990.
 - iii. Similarly, the Title 22 standards for landfill closure may be applicable to IR Site 2 landfill because the site received waste in 1981 when RCRA standards became effective. The Navy neither applied for an interim status Part A permit for the IR Site 2 landfill, nor did the Navy close the landfill in compliance with all applicable requirements. IR Site 2 is also identified as a solid waste management unit requiring corrective action in the Naval Air Stations 1993 RCRA permit. The FS Report summary of ARARs should be changed to reflect the applicability of these regulations to the landfill cover.
- h. **Dredge soils should be certified as clean:** One option for the soil portion of the cover proposed is to use dredged sediment. If this is done, the dredged material should be certified clean since often Bay sediment can be impacted by metals and organic compounds. Simply having concentrations below the calculated background levels is not sufficient to be certified as clean. When background concentrations are calculated, the statistical method used skews the concentrations to the very high end (to give a high likelihood that the highest naturally occurring concentration

will be included). Having the majority of the dredge material close to this high background concentration could increase risk at the site.

6. **Wetlands Remediation and Restoration**

- a. Contrary to the FS Report, wetlands remediation and restoration are practical. The argument that restoration is a greater detriment to wildlife than a toxic habitat is spurious. Wetland restoration projects on the East Bay shoreline to improve hydrology have been characterized by a quick recovery of vegetation. The FS Report argument for not remediating wetlands includes, "The wetlands portion of IR Site 2 has been left generally untouched for approximately 50 years..." However, the wetlands portion of IR Site 2 was used for the disposal of 21,000 cubic yards of contaminated sediment from the Seaplane Lagoon in 1981.
- b. The FS speculates that the low invertebrate abundance and diversity in the wetlands ponds could be attributed to "predation, seasonal drought conditions, a natural condition, or some combination of such factors." The FS must also consider that the abundance and diversity of toxic substance in samples of pond water and wetland sediments are the predominate factor affecting wildlife in the wetlands area.

7. **Background Data**

- a. The calculated background metal concentrations for the "yellow area" presented in the FS Report were compared with the "yellow area" background concentrations presented in the Environmental Baseline Survey (EBS). The FS Report background values were based on the results of 51 background samples, while only 50 background samples were used in the EBS dataset. The additional sample included in FS Report background dataset had a lead concentration of 752 mg/kg well above the maximum concentration of 180 mg/kg in the remaining 50 background samples reported in the EBS. This single 51st sample raised the calculated lead "background value" from 118 mg/kg reported in the EBS to the 166 mg/kg "background value" reported in the FS Report.
- b. The rationale for using an off-site source, China Camp, as a source of background data for wetland sediments appears to be the perception that it is located in a pristine environment. China Camp is located on the shoreline of San Pablo Bay, home to a century of petroleum refining and chemical manufacturing. The use of this data had allowed high levels for copper, selenium, and vanadium to remain in wetland sediments. The proposed selenium criterion for instance exceeds the "effects range median" for sediment toxicity.

8. **Incomplete Evaluation of Monitored Natural Attenuation (MNA):** The proposed approach to address groundwater contamination is to let the groundwater naturally clean up while being monitored. In its 1999 directive on MNA (*Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*), the Environmental Protection Agency (EPA) stressed the need for a thorough evaluation of the site characteristics when MNA was used and that, generally, MNA would be used in conjunction with more active remediation approaches. The FS performs a

minimal evaluation of MNA, providing little confidence that MNA is the correct option to be selected. The FS should:

- a. **Evaluate potential efficacy of MNA:** The EPA directive specifies the collection and evaluation of site-specific data that will enable an estimate with an acceptable level of confidence that RAOs can be achieved in a timely fashion. EPA proposes a three-tiered approach including: 1) trend analysis on historical groundwater data that shows that contaminant concentrations decrease over time; 2) indirect demonstration of natural attenuation through analysis of hydrogeologic and geochemical data; and 3) microcosm studies that directly demonstrate a particular type of natural attenuation. For this site, it would be good to begin with the first tier of analysis since there are 14 years of historical groundwater monitoring data. If the monitoring data show a clear trend of decreasing concentrations, then there is greater confidence that MNA is the appropriate technique for this site. If no clear trends are shown, additional, more sophisticated analysis should be performed.
- b. **Identify the time frame to reach acceptable groundwater concentrations:** The EPA directive specifies that MNA should be selected only when this approach will meet the RAOs "within a timeframe that is reasonable compared to that offered by other methods" (EPA, 1999). The FS does not perform the analysis to determine how long it would take to reach acceptable groundwater concentrations using MNA. This analysis should be performed in order to determine whether or not MNA is a reasonable approach.
- c. **Put in place source controls as an integral part of MNA:** The EPA directive stresses that source control measures should particularly be evaluated at MNA sites. For IR Site 2, the primary approach to controlling the source of groundwater contaminants would be the installation of an impermeable layer in the landfill cap. Such a layer would minimize mobilization of contaminants above the water table and increase the likelihood that MNA would be successful.
- d. **Reevaluate MNA as a remedial alternative:** Once the previous steps have been completed, the FS should once again evaluate whether MNA is a defensible approach to addressing groundwater contamination at the site. Included in this analysis is whether MNA will address ecological risks to wildlife from surface water, including risks that were identified in the RI (to birds in North Pond) and to those that were not included in the ERA. An example of eco-risk in surface water that is related to groundwater is fish toxicity to copper. Copper was detected at elevated concentrations in groundwater (RI Table 5-7). FS Table G-3 indicates that the copper concentration in wells exceeded the appropriate standard (the California Toxic Rule Criteria [CTR]) by as much as a factor of twenty. FS Table G-1 identifies a long list of inorganic and organic contaminants that exceeded the CTR in groundwater. Unfortunately, the chemical analytical detection limit of copper in pond water was above the applicable

regulatory standard so it is unknown if copper is present in the North Pond at chronic toxicity levels (see RI Table 5-11).

SPECIFIC COMMENTS

1. p.2-2, **Potential release from drums:** Full hazardous chemical drums were reported as being buried during the early period of operation of the landfill. These pose a threat of future release as the drums rust through, reinforcing the need for an impermeable layer within the cap to minimize downward migration of contaminants from above the water table.
2. p. 2-8, **Faulty hydrogeologic evaluation:** The text says that the shallow materials in the First Water-Bearing Zone (FWBZ) have low hydraulic conductivities. This is not supported by the geologic cross-sections which indicate the presence of permeable sandy material in the FWBZ, thus increasing the likelihood of lateral contaminant migration to surface water bodies. Furthermore, there is significant potential for downward migration of contaminants from the FWBZ to the Second Water-Bearing Zone (SWBZ). The reason for this is the thinness of the aquitard separating the two zones. As can be seen in cross-sections A-A' (Fig. 2-5), B-B' (Fig. 2-6), C-C' (Fig. 2-7) and F-F' (Fig. 2-10), the fine-grained portions of the aquitard are as thin as 5 feet in some locations. The thinness of the fine-grained horizon implies that it may not be laterally continuous. The vertical hydraulic gradient between the two zones (based on water levels presented in Fig. 2-11) are downward at many locations. Significant contamination of the SWBZ has been observed at several locations (see FS App. G, p. 5 for a discussion of the 7 metals and 2 SVOC/PAHs that exceed standards in the SWBZ; data are summarized in Table G-4) indicating that downward migration of contaminants has occurred, contrary to what is stated in the report.
3. p.2-16, **Review of seismic upgrade:** The safety of the site during a large earthquake has been identified as being very low. An initial proposal for a seismic upgrade was made, however, the Navy is reevaluating that recommendation to incorporate newer technology. When the proposal for the final seismic upgrade is made, it will be important to have a technical expert review that proposal.
4. p.2-32, **Composited samples for radiological analysis:** Rather than individually analyzing soil samples with radioactivity at twice background or greater, six samples were composited (mixed) and then analyzed. This mixing would have diluted the radioactivity of a single sample so that a radioactive hotspot would not have been identified. Because of this, the radiological survey could have underestimated the risk at individual soil sampling locations. Hopefully, an effort will be made during the radium TCRA to identify all hotspots.
5. Section 2.7 (p. 2-44 to 2- 48) **Eliminating risk based on ambient values:** much of the risk identified in the RI is eliminated in the FS based on comparison to contaminant concentrations detected at China Camp State Park (CCSP). The appropriate place to complete the risk assessment was in the RI. It should not be completed in the FS because the valid risks to be addressed need to be identified

prior to examining remedial alternatives. It is unclear that CCSP is the correct location for determining ambient concentrations for a number of reasons:

- a. the site was occupied for a number of years,
- b. there has been no comparison of geology or sediment transport processes to establish the similarities between CCSP and IR Site 2 that would justify making the comparison of concentrations,
- c. so few samples were taken at CCSP that the soil and sediment samples had to be lumped together, and
- d. no subsurface samples were taken at CCSP for comparison.

All these factors limit the applicability of CCSP as an ambient comparison site and cast significant doubt on the large elimination of risk at the IR Site 2 based on concentrations observed at CCSP. Risks as identified in the RI, rather than as minimized in the FS, should be the drivers for clean-up.

6. p. 3-7, **Surface Water Risk Inconclusive:** The FS states that there was no site-specific surface water toxicity. It does not state the basis for this conclusion. Furthermore, copper (a significant fish toxin) had an analytical detection limit twice the applicable water quality standard (RI Table 5-11), which would not have permitted the identification of chronic fish toxicity.
 7. p. 3-8, **Soil Gas Threat:** The toxic threat of escaping soil gas is addressed by institutional controls in the form of a residential use restriction. It is unclear if radon gas produced by the radioactive decay of elevated radium in soils was included in the analysis. In addition to a residential use restriction, strong consideration should be given to prohibiting the building of any type of structure over waste, including structures such as a nature study center, park ranger office, or restroom.
 8. p. 3-16, **Footprint of Groundwater Remediation Area:** The FS states that the remediation area for groundwater is that which encompasses the entire FWBZ where concentrations exceed the applicable water quality standards (California Toxics Rule concentrations). This area needs to be identified on a map so that its relationship to potential ecological exposure points can be evaluated.
 9. App. C, **Attachments:** All five attachments (C1 through C5), which are correspondence with regulatory agencies, were missing from both the hardcopy and CD of the report. These letters need to be included in the final FS.
 10. p. C1-6, **Appropriate State Regulations:** Why was DTSC rather than the RWQCB contacted to identify the appropriate State ARARS? Since the initial landfill closure decades ago was under the direction of the RWQCB, that state agency should have had at least an equal say in identifying State ARARS. The RWQCB should identify the State ARARS that they consider govern this site.
- p. C4-2, **Applicability of Titles 22, 23, and 27:** The FS states that these California regulations do not apply because the landfill stopped receiving waste before these regulations came into effect. The landfill prescriptive cover portions of these regulations have been applied in the Bay Area to landfills that stopped receiving waste even earlier, but that are being closed at present, now that the regulations are in effect. It is unclear why the same requirements wouldn't

CONCLUSION

In conclusion, Golden Gate Audubon would again like to commend the Navy for its efforts and thank you for this opportunity to comment. Sufficient cleanup of toxics at the Alameda Naval Air Station is essential not only for the special-status species and other wildlife that rely on it for habitat, but also for the people that will use this site. A comprehensive Feasibility Study is critical to ensuring that this occurs. For this reason, we encourage the Navy to carefully consider and incorporate our comments in drafting the final Feasibility Study.

Thank you for considering these comments.

Sincerely,

Samantha Murray
Conservation Director

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